

**FIRE PROTECTION TANK SHOP DRAWINGS**  
**2003 NFPA 22 and 2002 NFPA 13**

Circled items require fire protection tank system shop drawing revisions or manufacturer product cut sheets verifying listing by a nationally recognized testing laboratory. Answers in letter form **are not** acceptable. **Starting construction before plans approval may be considered as just cause, by the State, to issue a stop work order. [Rule 0780-2-7-.09]**

1. Provide 2-copies of the fire protection tank system shop drawings with specifications and 1-copy of manufacturer product cut sheets verifying listing. [NFPA 22 4.5 and 2002 NFPA 24 4.1.1]
2. The location of tanks shall be such that the tank and structure are not subject to fire exposure. If lack of yard room makes this impracticable, exposed steel shall be fire proofed or protected by open sprinklers. This protection shall be provided for steel within 20 feet. [NFPA 22 4.2]
3. Piping connections and fittings. [NFPA 22 Chapter 13]
  - a. Check valves. [NFPA 22 13.2.11 and 13.4.1]
  - b. Controlling valves. [NFPA 22 13.2.12]
  - c. Filling pumps. [NFPA 22 13.4.2]
  - d. Steel Pipe shall comply with NFPA 22 13.1.15.
4. Water tank shall have a water level gauge and be supervised indicating abnormal high or low water level. [NFPA 22 13.1.11 and 2002 NFPA 72 5.13.3]
5. Water temperature shall be supervised for protection against freezing. [NFPA 22 Chapter 15 and 2002 NFPA 72 13.4]
6. Pressure tank shall be provided with an approved means for automatically maintaining the required air pressure. [NFPA 22 7.1.4 and 7.2.10]
7. Pressure tanks shall be kept with a supply of water to meet the demand of the fire protection system as calculated by NFPA 13 Chapter 14 and for the duration of NFPA 13 Chapter 11. [NFPA 22 7.1.4]
8. Provide an approved trouble alarm to indicate low air pressure and low water level with the alarm supplied from an electrical branch circuit independent of the air compressor. [2002 NFPA 72 5.13.2.2 and 5.13.3]
9. Provide water level indicator for pressure tank. [NFPA 22 7.2.5]
10. The pressure tank discharge pipe must be at the bottom of the tank (minimum four inch pipe with OS&Y valve). [NFPA 22 7.2.2.1]
11. Filling pipe shall be minimum 1½ inches, run separately from the filling pump, and shall be connected to the top. [NFPA 22 7.2.3]
12. Air pipe shall be a minimum of one inch. [NFPA 22 7.2.4]
13. Provide water level gauges for pressure tank or elevated tank. [NFPA 22 7.2.5, 9.6.3 and 13.1.11]
14. Provide a relief valve between check valve and air compressor for pressure tank minimum ¾ inch set to operate 10% in excess of the normal tank pressure. [NFPA 22 7.2.7]

15. Lightning protection shall be installed per 2000 NFPA 780, *Standard for the Installation of Lightning Protection Systems*. [NFPA 22 4.9]
16. Tank roofs shall be provided and if airtight, vents shall be provided. [NFPA 22 4.14 and 4.15]
17. Valve Pit or Valve House (with heater) shall be provided where the tank is on an independent tower. [NFPA 22 Chapter 14]
18. Discharge pipe shall be minimum 6 inches for tanks up to and including 25,000 gallons, 8 inches for tanks 30,000 to 100,000 gallons, and 10 inches for greater capacities. [NFPA 22 13.2.2.2]
19. Where a house that is located above grade with no large pit beneath it is used, it shall be necessary to place the OS&Y gate valve in the vertical part of the tank discharge pipe and to construct a small brick or concrete pit or well to contain the check valve in the horizontal pipe below the frost line. [NFPA 22 14.1.1.3]
20. Where the valve pit is located below grade, it shall be built of portland cement concrete with a clean aggregate. [NFPA 22 14.1.2.1]
21. A valve house that is located above grade shall be constructed of concrete, brick, cement plaster on metal lath, or other noncombustible material with suitable heat-insulating properties. [NFPA 22 Table 14.1.2.4]
22. The heating system shall be of such capacity that the temperature of the coldest water in the tank or riser, or both, is maintained at or above 42°F during the coldest weather. [NFPA 22 15.1.2]
23. A low water temperature alarm set at 40°F shall be provided. [NFPA 22 15.1.2.2]
24. The following requirements shall apply to pressure supervisory signal-initiating devices: A pressure tank supervisory signal-initiating device for a pressurized limited water supply, such as a pressure tank, shall indicate both high- and low-pressure conditions. The off-normal signal shall be initiated when the required pressure increases or decreases by 10 psi. [2002 NFPA 72 5.13.2.2]
25. Water Level Supervisory Signal-Initiating Device: Two separate and distinct signals shall be initiated: one indicating that the required water level has been lowered or raised (off-normal) and the other indicating restoration. [2002 NFPA 72 5.13.3.1]
26. A pressure tank signal-initiating device shall indicate both high- and low-water level conditions. The off-normal signal shall be initiated when the water level falls 3 in. or rises 3 in. [2002 NFPA 72 5.13.3.2]
27. A supervisory signal-initiating device for other than pressure tanks shall initiate a low water level signal when the water level falls 12 in. [2002 NFPA 72 5.13.3.3]
28. Water Temperature Supervisory Signal-Initiating Device. A temperature supervisory device for a water storage container exposed to freezing conditions shall initiate two separate and distinctive signals. One signal shall indicate a decrease in water temperature to 40°F and the other shall indicate its restoration to above 40°F. [2002 NFPA 72 5.13.4]